

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:  
EDMUND P. PFLEGER  
GROSSMAN, TUCKER, PERREAULT &  
PFLEGER, PLLC  
55 SO. COMMERCIAL STREET  
MANCHESTER, NH 03101

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

R E C E I V E

Date of mailing  
(day/month/year)

CPI  
PCT ✓  
US (1) ✓

Applicant's or agent's file reference  
ART034PCT

OCT 03 2008

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.  
PCT/US 08/53194

GROSSMAN, TUCKER,  
PERREAULT & PFLEGER, PLLC

International filing date  
(day/month/year) 06 February 2008 (06.02.2008)

Applicant ARTHROSURFACE INCORPORATED

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: +41 22 740 14 35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, within **20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

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SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year) **01 OCT 2008**



Applicant's or agent's file reference  
ART034PCT

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.  
PCT/US 08/53194

International filing date  
(day/month/year) 06 February 2008 (06.02.2008)

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**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

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In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

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Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ART034PCT	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US 08/53194	International filing date ( <i>day/month/year</i> ) 06 February 2008 (06.02.2008)	(Earliest) Priority Date ( <i>day/month/year</i> ) 06 February 2007 (06.02.2007)	
Applicant ARTHROSURFACE INCORPORATED			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 23 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/53194

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:  
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-16

Group II: Claims 17-22

Group III: Claims 23-28

The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is an implant having a number of tangential curves

The special technical feature of Group II is a drill guide with a number of spaced bushings

The special technical feature of Group III is a measuring device with a guide pin

None of these technical features are common to the other groups, nor do they correspond to a special technical feature in the other groups. Thus, unity of invention is lacking under PCT Rule 13 because the groups do not share a same or corresponding special technical feature.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-16

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/53194

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/38 (2008.04)

USPC - 623/20.14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A61F 2/38 (2008.04)

USPC - 623/20.14

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8) - A61F 2/38, 2/28, 2/36, 2/46 (2008.04)

USPC - 623/20.14, 11.11, 18.11

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWest: US PAT, US PGPUB, US OCR, EPO, JPO; Google Scholar; Keywords: femoral, femur, condyle, implant, implanted, implantable, implanting, truncate, truncated, truncation, truncating, segment, tangential, arcuate, arc, curved, curve, curvature, round, shape, and pattern

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0020343 A1 (EK) 26 January 2006 (26.01.2006) para [0051], [0092], [0095]-[0105], [0103], [0107], [0113]-[0121], [0123]-[0126]	1-16

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

25 September 2008 (25.09.2008)

Date of mailing of the international search report

01 OCT 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:  
EDMUND P. PFLEGER  
GROSSMAN, TUCKER, PERREAULT &  
PFLEGER, PLLC  
55 SO. COMMERCIAL STREET  
MANCHESTER, NH 03101

Date of mailing  
(day/month/year) **01 OCT 2008**

Applicant's or agent's file reference  
**ART034PCT**

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.

**PCT/US 08/53194**

International filing date (day/month/year)

**06 February 2008 (06.02.2008)**

Priority date (day/month/year)

**06 February 2007 (06.02.2007)**

International Patent Classification (IPC) or both national classification and IPC

**IPC(8) - A61F2/38 (2008.04)**

**USPC - 623/20.14**

Applicant **ARTHROSURFACE INCORPORATED**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US  
Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. **571-273-3201**

Date of completion of this opinion

**25 September 2008 (25.09.2008)**

Authorized officer:

**Lee W. Young**

PCT Helpdesk: 571-272-4300  
PCT OSP: 571-272-7774

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/53194

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed.
  - ☐ a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
  - a. type of material
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing
    - ☐ contained in the international application as filed
    - ☐ filed together with the international application in electronic form
    - ☐ furnished subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/53194

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:
- ☐ paid additional fees
  - ☐ paid additional fees under protest and, where applicable, the protest fee
  - ☐ paid additional fees under protest but the applicable protest fee was not paid
  - ☒ not paid additional fees

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

☐ complied with

☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: Claims 1-16

Group II: Claims 17-22

Group III: Claims 23-28

The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The special technical feature of Group I is an implant having a number of tangential curves

The special technical feature of Group II is a drill guide with a number of spaced bushings

The special technical feature of Group III is a measuring device with a guide pin

None of these technical features are common to the other groups, nor do they correspond to a special technical feature in the other groups.

Thus, unity of invention is lacking under PCT Rule 13 because the groups do not share a same or corresponding special technical feature.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

☐ all parts

☒ the parts relating to claims Nos. 1-16

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US 08/53194

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	NONE	YES
	Claims	1-16	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims	NONE	NO

**2. Citations and explanations:**

Claims 1-16 lack novelty under PCT Article 33(2) as being anticipated by US 2006/0020343 A1 to Ek (hereinafter "Ek").

In regards to claim 1, Ek teaches an implant for replacing a portion of an articular surface of a femoral condyle comprising: first, second, and third segments, wherein said second and said third segments partially overlap said first segment on opposing ends of said first segment, said first, said second, and said third segments comprise a bone contacting surface and a load bearing surface (para [0123]-[0125]), said load bearing surface comprising an anterior-posterior (AP) curvature and a medial lateral (ML) curvature, wherein said AP curvature comprises at least two tangential curves of said portion of said articular surface of said femoral condyle (para [0126]), said tangential curves having different radii of curvature (para [0113]-[0121]).

In regards to claim 2, Ek teaches that said first, said second, and said third segments each comprise a truncated, generally circular shape (para ([0107])).

In regards to claim 3, Ek teaches that said first, said second, and said third segments each comprise a generally circular shape truncated along said AP curvature of said implant (para [0126]).

In regards to claim 4, Ek teaches that said first, said second, and said third segments each comprise a generally circular shape truncated along said ML curvature of said implant (para ([0126])).

In regards to claim 5, Ek teaches that said bone contacting surface comprises at least one mounting feature configured to secure said implant to said femoral condyle (para [0113]).

In regards to claim 6, Ek teaches that said at least one mounting feature is configured to securely engage with a mounting screw (para [0051], [0098], [0103], and [0119]).

In regards to claim 7, Ek teaches that said at least one mounting feature includes an opening configured to engage with a post of said mounting screw (para [0051], [0098], [0103], and [0119]).

In regards to claim 8, Ek teaches that said first, said second, and said third truncated, generally circular segments comprise first, second, and third axes extending through respective centers of said segments, respectively, wherein said first axis is substantially normal to said portion of said articular surface (para [0095]-[0105]).

In regards to claim 9, Ek teaches that said second and said third axes are substantially normal to said portion of said articular surface (para [0095]).

In regards to claim 10, Ek teaches that a first angle  $\alpha$  between said first axis and said second axis and a second angle  $\beta$  between said first axis and said third axis are substantially symmetrical (para [0126]).

In regards to claim 11, Ek teaches a method of forming an implant for replacing a portion of an articular surface extending across at least two tangential curves of a femoral condyle, said tangential curves having different radii of curvature (para [0098] and [0116]), said method comprising: establishing a reference axis extending substantially normal to a point of origin on said portion of said articular surface (para [0092]); establishing a reference plane that is parallel to a tangential plane extending through said point of origin on said articular surface (para [0097]); measuring a first distance between said reference plane and a first point on said articular surface at a distance R1 along an anterior-posterior (AP) curvature of said portion of said articular surface from said reference axis (para [0126]); measuring a second distance between said reference plane and a second point on said articular surface at a distance R2 along said AP curvature of said portion of said articular surface from said reference axis, wherein R1 is less than R2 (para [0095]-[0105] and [0126]); and providing an implant body having a load bearing surface, said load bearing surface comprising a first curvature approximating said at least two tangential curves of said portion of said articular surface based on said first and said second distances (para [0098] and [0116]).

---Please see continuation box

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US 08/53194

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:  
Box V (2):

In regards to claim 12, Ek teaches that providing an implant comprising a first, second, and third segment, wherein said second and said third segments partially overlap said first segment on opposing ends of said first segment, said first, said second, and said third segments comprise said bone contacting surface and a load bearing surface (para [0123]-[0125]).

In regards to claim 13, Ek teaches that said first, said second, and said third segments comprise a first, a second, and a third axis extending through a center of a respective one of said segments, respectively, and wherein a first angle  $\alpha_1$  between said first axis and said second axis and a second angle  $\beta_1$  between said first axis and said third axis are substantially symmetrical (para [0126]).

In regards to claim 14, Ek teaches that measuring at least two distances between said reference plane and a third and fourth point on said articular surface at a distance along a medial-lateral (ML) curvature of said portion of said articular surface from said reference axis (para [0095] and [0126]); and providing said load bearing surface comprising a second curvature approximating said ML curvature of said portion of said articular surface (para [0095] and [0126]).

In regards to claim 15, Ek teaches that said first curvature approximating said at least two tangential and different curves of said articular surface is determined based on only said first and said second distances taken at distances  $R_1$  and  $R_2$ , respectively, from the reference axis (para [0095]-[0105]).

In regards to claim 16, Ek teaches that measuring two points at a distance  $R_2$  along said AP curvature of said portion of said articular surface from said reference axis, wherein one of said two points is taken at a point anterior from said reference axis and said other said two points is taken at a point posterior from said reference axis (para [0095]-[0105]).

Claims 1-16 have industrial applicability as defined by PCT Article 33(4), because the subject matter can be made or used in industry.